

In the Claims:

1. (Currently Amended): A system for three-dimensional viewing of a display, the display presents a frame, the frame includes first subregions and second subregions distributed across and along the frame, the first subregions alternately present first and second picture elements of a left image and a right image, respectively, while at the same times, the second subregions alternately present corresponding second and corresponding first picture elements of the right image and the left image, respectively, the system comprising:

(a) a layer of shutter means which comprises multiple switchable shutter elements, said multiple switchable elements are operable to create horizontally contiguous alternating first and second subareas arranged across and along said layer, each subarea of said alternating first and second subareas includes a plurality of horizontally contiguous elements of said switchable elements, wherein in a first phase of operation, said first subareas are opaque and said second subareas are transparent, whereas in a second phase of operation said first subareas are transparent and said second subareas are opaque, said layer of shutter means being in a distance from the display and said first and second subareas being distributed across and along said layer of shutter means, such that in said first phase of operation, light emanating from the first subregions reaches the one of the eyes of the viewer and is blocked from the other eye and light emanating from the second subregions reaches the other eye of the viewer and is blocked from the first eye, whereas in said second phase of operation, light emanating from the first subregions reaches the other eye of the viewer and is blocked from the first eye and light emanating from the second subregions reaches the first eye of the viewer and is blocked from the other eye;

(b) a coordinating element coordinating between rates of selecting said first and second phases of operation and between alternately presenting the first and second picture elements of the left and right images in the first and

second subregions, such that when said first phase of operation is selected, the first picture elements are presented in the first subregions and the second picture elements are presented in the second regions, whereas when said second phase of operation is selected, the second picture elements are presented in the first subregions and the first picture elements are presented in the second regions; and

(c) a multi-line controlling switching means operable to select a plurality of sets of contiguous elements of said multiple switchable shutter elements to function as said first subareas and to select a plurality of sets of contiguous elements of said multiple switchable shutter elements to function as said second subareas,

wherein, the system being adjustable to varying positions and distances of the eyes of a viewer relative to said display, so as to maintain three-dimensional vision, and further being operable to maintain three-dimensional vision during sideways motion of a viewer in an amount smaller than a distance between left and right eyes of said viewer.

2 - 4. (Cancelled)

5. (Previously Amended): A system for three-dimensional viewing as in claim 1, further comprising additional layers of shutter means being between the display and a viewer and being controlled by said multi-line controlling switching means.

6. (Previously Amended): A system for three-dimensional viewing as in claim 1, further comprising means for sensing said position and said distance of the viewer relative to the display.

7. (Currently Amended): A system for three-dimensional viewing of a display by a viewer, the system comprising:

(a) a display operable to present picture elements of a left image in first subregions of variable position on said display, and to present picture elements of a right image in second subregions of variable position on said display;

(b) at least one layer of shutter means positioned between said display and said viewer, said layer of shutter means comprises:

(i) a first light polarizing sublayer;

(ii) a second light polarizing sublayer; and

(iii) a sublayer of multiple on and off switchable horizontally contiguous light rotating elements positioned between said first light polarizing sublayer and said second light polarizing sublayer;

(c) a multi-line controlling switching means, each of said multiple switchable light rotating means of each of said at least one sublayer of multiple on and off switchable light rotating means being individually switched on and off by said multi-line controlling switching means;

(d) a computing element operable to utilize said multi-line controlling switching means to switch on and off said switchable light rotating elements so as to establish within said layer of shutter means first subareas transparent to passage of light and second subareas opaque to passage of light, wherein each of said first subareas comprises a plurality of horizontally contiguous elements of said switchable light rotating elements, and each of said second subareas comprises a plurality of horizontally contiguous elements of said switchable light rotating elements, said first and said second subareas being distributed across and along said layer of shutter means in such a manner that light emanating from said first subregions reaches the left eye of a viewer and is blocked from the viewer's right eye, and light emanating from said second subregions reaches the right eye of the viewer and is blocked from the viewer's left eye;

wherein, the system being adjustable to varying positions and distances of the eyes of a viewer relative to said display, so as to maintain three-dimensional vision, and further being operable to maintain

three-dimensional vision during sideways motion of said viewer with respect to said display in an amount smaller than a distance between left and right eyes of said viewer.

8. (Original): The system of claim 7, further comprising an eye-locating unit for sensing said position and said distance of the eyes of a viewer relative to said display.

9. (Original): The system of claim 8, wherein information provided by said eye-locating unit is utilized by said computing element to compute positions at which to establish said first subareas and said second subareas within said layer of shutter means.

10. (Original): The system of claim 8, wherein information provided by said eye-locating unit is utilized by said computing element to select first portions of said display as said first subregions, and to select second portions of said display as said second subregions.

11. (Original): The system of claim 8, wherein information provided by said eye-locating unit is utilized by said computing element to select first portions of said display as said first subregions and to select second portions of said display as said second subregions, and wherein said information provided by said eye-locating unit is further utilized by said computing element to compute positions at which to establish said first subareas and said second subareas within said layer of shutter means.

12. (Original): The system of claim 8, wherein said eye-locating unit comprises a camera.

13. (Previously Amended): The system of claim 7, further comprising a plurality of said layers of shutter means.

14. (Currently Amended): A system for providing to a viewer stereoscopic viewing of a left image and a right image, comprising:

(a) a display operable to present a frame which includes at any given time first subregions and second subregions distributed across and along said frame, said first subregions presenting picture elements of a left image, said second subregions presenting picture elements of a right image;

(b) an eye-locating module operable to determine and report eye positions of said viewer with respect to said display;

(c) a multi-element layer of shutter means interposed between said viewer and said display, said layer of shutter means comprises multiple horizontally contiguous individually switchable elements, each of said elements being operable in a first mode of operation to prevent passage of light through a portion of said layer, and operable in a second mode of operation to permit passage of light through said portion of said layer;

(d) a control module operable to switch selected elements of said switchable elements to said first mode of operation and to switch selected other elements of said switchable elements to said second mode of operation; and

(e) a calculation module operable to utilize information provided by said eye-locating module to coordinate sizes and positions of said first and second subregions with selection of a plurality of sets each of a plurality of horizontally contiguous elements of said light-rotating elements to be in said first mode of operation and a plurality of other sets each of a plurality of other horizontally contiguous ~~of other~~ elements of said light-rotating elements to be in said second mode of operation, such that light from said first subregions reaches only the left eye of a viewer and light from said second subregions reaches only the right eye of a viewer, the system being adaptable to varying positions of the viewer's eyes, and further being adaptable to maintain stereoscopic viewing during sideways motion of said viewer with respect to said display, said sideways motion being of a distance smaller than a distance between left and right eyes of said viewer.

15. (Original): The system of claim 14, wherein said first subregions and said second subregions are of fixed size, the system accommodating to lateral movement of a viewer.

16. (Currently Amended): A system for three-dimensional viewing of a display, the display presents a frame, the frame includes first subregions and second subregions distributed across and along the frame, the first subregions present picture elements of a left image while at the same time the second subregions present picture elements of a right image, the system comprising:

- (a) at least one layer of shutter means, which comprises
 - (i) a first light polarizing sublayer;
 - (ii) a second light polarizing sublayer; and
 - (iii) a sublayer of multiple horizontally contiguous on and off switchable light rotating elements located between said first light polarizing sublayer and said second light polarizing sublayer;
- (b) a multi-line controlling switching means, each of said multiple switchable light rotating means of each of said sublayer of multiple on and off switchable light rotating means being individually switched on and off by said multi-line controlling switching means; and
- (c) a computing element operable to utilize said multi-line controlling switching means to establish within said layer of shutter means first subareas transparent to passage of light and second subareas opaque to passage of light, wherein each of said first and said second subareas comprises a plurality of said horizontally contiguous on and off switchable light rotating means, said first and said second subareas being distributed across and along said layer of shutter means in such a manner that light emanating from the first subregions of the display reaches the left eye of a viewer and is blocked from the viewer's right eye, and light emanating from the second subregions of the display reaches the right eye of the viewer and is blocked from the viewer's left eye;

wherein, the system being adjustable to varying positions and distances of the viewer from said display, so as to maintain three-dimensional vision, and further being adjustable to maintain stereoscopic viewing during sideways motion of said viewer with respect to said display, said motion being in an amount smaller than a distance between left and right eyes of said viewer.

17. - 20. (Cancelled)

21. (Currently Amended): A method for showing stereoscopic three-dimensional images to a viewer, comprising:

(a) utilizing eye-locating apparatus for determining positions of eyes of a viewer with respect to a display;

(b) utilizing computing means to select, based on information provided by said eye-locating apparatus, first subregions of a display for display of picture elements of a left image and second subregions of a display for display of picture elements of a right image, and further utilizing said computing means to select, on a layer of shutter means positioned between said viewer and said display and having multiple horizontally contiguous switchable shutter elements, multiple sets of horizontally contiguous elements of said switchable shutter elements to function as said first subareas, and to select multiple sets of other horizontally contiguous elements of said switchable elements to function as said second subareas, said first subareas of said layer of shutter means to be in a first mode of operation wherein said first subareas are opaque, and second subareas of said optical layer to be in a second mode of operation wherein said second subareas are transparent,

(c) displaying picture elements of a left image on said first subregions of said display and displaying picture elements of a right image on said second subregions of said display; and

(d) utilizing multi-line controlling switching means controlling multiple switchable light rotating means included in said layer of shutter means to switch said selected first subareas of said layer of shutter means to said first

mode of operation, thereby rendering said selected first subareas opaque, and utilizing said multi-line controlling switching means to switch said selected second subareas of said optical layer to said second mode of operation, thereby rendering said selected second subareas transparent;

thereby creating an optical configuration such that light from said first subregions of said display can be seen by a left eye of said viewer but is blocked from being seen by a right eye of said viewer, and light from said second subregions of said display can be seen by a right eye of said viewer but is blocked from being seen by a left eye of said viewer, thereby providing to said viewer a stereoscopic view of left and right images.

22. (Cancelled)

23. (Previously Added): The system of claim 1, wherein said layer of shutter means comprises:

- (a) a first light polarizing sublayer;
- (b) a second light polarizing sublayer; and
- (c) a sublayer of multiple on and off switchable light rotating elements positioned between said first light polarizing sublayer and said second light polarizing sublayer.

24. (Cancelled)

25 (Previously Added): The system of claim 14, wherein said multi-element layer of shutter means comprises:

- (a) a first light polarizing sublayer;
- (b) a second light polarizing sublayer; and
- (c) a sublayer positioned between said first light polarizing sublayer and said second light polarizing sublayer comprising said multiple on and off switchable elements, wherein said multiple on and off switchable elements are on and off switchable light rotating elements.

26. (Previously Added): The system of claim 14, wherein said calculation module is operable to utilize information provided by said eye-locating module to select sizes and positions of said first and second subregions and to select ones of said light-rotating elements to be in said first mode of operation and of others of said light-rotating elements to be in said second mode of operation, such that light from said first subregions reaches only the left eye of a viewer and light from said second subregions reaches only the right eye of a viewer, the system accommodating to lateral movement of a viewer and also accommodating to varying distances of a viewer from said display.

27. (Cancelled)

28. (Previously Added): The system of claim 1, operable to vary both size and placement of said first subareas and of said second subareas, under computer control.

29. (Previously Added): The system of claim 1, wherein a ratio of width of said subregions to width of said subareas is variable.

30. (Cancelled)

31. (Cancelled)